Notice of Allowability	Application No.	Applicant(s)	
	09/670,000	HOLDEN ET AL.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *4/7/06*.

2. ☒ The allowed claim(s) is/are *3-6,8-10,13-16,28 and 30-33*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Halbert on June 1, 2006.

2. The application has been amended as follows:

In claim 3, line 31, in the phrase "said extracted"; replace "said" with - -the- -.

In claim 5, line 11; replace "mode" with - -model- -.

In claim 9, line 3, in the phrase "said polarized beam"; replace "said" with - -the- -.

In claim 9, line 5; replace "detect" with - -detects- -.

In claim 13, line 16, in the phrase "said detected intensities"; replace "said" with - -the- -.

In claim 30, line 7; add a period at the end of the line.

Reasons for Allowance

3. Claims 3-6, 8-10, 13-16, 28, and 30-33 are allowed. The following is an examiner's statement of reasons for allowance.

4. Regarding claim 3, prior art fails to disclose or fairly suggest an apparatus for measuring one or more parameters of a diffracting structure and at least one underlying layer on a sample

including a polarizing element, radiation passing through said polarizing element toward said sample, said radiation being normally incident on and diffracted by said diffracting structure and at least one underlying layer on said sample, a zeroth order diffracted radiation passing through said polarizing element, at least one of said polarizing element and said sample are rotatable to produce a relative rotation between said polarizing element and said diffracting structure, and a computer system for analyzing a spectrograph signal to determine said one or more parameters of said diffracting structure and at least one underlying layer on said sample, said computer system including a computer program executed by at least one computer wherein said computer program includes instructions for curve fitting spectral information for an optical model to extracted spectral information to determine said one or more parameters of said diffracting structure and at least one underlying layer on said sample, in combination with all the limitations in the claim. Claims 4-6, 8-10, and 30-33 are allowed by virtue of their dependency.

5. Regarding claim 13, prior art fails to disclose or fairly suggest a method of measuring at least one parameter of a diffracting structure and at least one underlying layer, said method including passing broadband radiation through a polarizing element to produce polarized radiation, directing said polarized radiation to be normally incident with said diffracting structure, said polarized radiation being diffracted by said diffracting structure and at least one underlying layer, analyzing a zeroth order diffracted radiation with said polarizing element to produce an output beam with a polarity orientation, producing a relative rotation between said polarizing element and said diffracting structure to alter the orientation of said polarized element relative to said diffracting structure, and using detected intensity of spectral components of said

output beam for a plurality of orientations to determine said at least one parameter of said diffracting structure and at least one underlying layer, in combination with all the limitations in the claim. Claims 14-16 are allowed by virtue of their dependency.

6. Regarding claim 28, prior art fails to disclose or fairly suggest an apparatus for measuring one or more parameters of a diffracting structure and at least one underlying layer on a sample, said apparatus including a polarizing element in the beam path of broadband radiation, wherein said radiation passes through said polarizing element toward said sample, said radiation is diffracted by said diffracting structure on said sample, a zeroth order diffracted radiation passing through said polarizing element, said polarizing element being rotatable to produce a relative rotation between said polarizing element and said diffracting structure, and a processor for comparing a detected intensity of spectral components of the zeroth order radiation to calculated intensity of spectral components for an optical model of the diffracting structure and at least one underlying layer to determine the one or more parameters of the diffracting structure and at least one underlying layer, in combination with all the limitations in the claim.

Conclusion

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gk

EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER